



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

March 17, 2003

MEMORANDUM TO: Melvyn N. Leach, Chief  
Special Projects and Inspection Branch  
Division of Fuel Cycle Safety  
and Safeguards, NMSS

THROUGH: Joseph G. Glitter, Chief *ALC JGG*  
Special Projects Section  
Special Projects and Inspection Branch  
Division of Fuel Cycle Safety  
and Safeguards, NMSS

FROM: Yawar H. Faraz, Senior Project Manager *YHF*  
Special Projects Section  
Special Projects and Inspection Branch  
Division of Fuel Cycle Safety  
and Safeguards, NMSS

SUBJECT: FEBRUARY 25, 2003, MEETING SUMMARY: U.S. ENRICHMENT  
CORPORATION GAS CENTRIFUGE LEAD CASCADE LICENSE  
APPLICATION MEETING

On February 25, 2003, U.S. Nuclear Regulatory Commission (NRC) staff held an open meeting with U.S. Enrichment Corporation (USEC) staff to discuss USEC's license application submitted to the NRC on February 12, 2003, for the gas centrifuge uranium enrichment test and demonstration facility (Lead Cascade). USEC intends to operate the Lead Cascade at the Portsmouth Gaseous Diffusion Plant site in Piketon, Ohio. I am attaching the meeting summary for your use. Several members of the public, including representatives from the offices of Governor Taft (Ohio) and Senator DeWine (Ohio), an executive board member of the Southern Ohio Diversification Initiative (SODI) and a reporter from McGraw-Hill, attended the meeting.

Docket: 70-7003

Attachment: USEC Gas Centrifuge Lead Cascade License Application Meeting Summary

cc: William Szymanski/DOE Headquarters  
James Curtiss/W&S  
Mario Robles/USEC  
George Dials/LES  
Randall DeVault/DOE Oak Ridge  
Dan Minter/SODI  
Bob Taft/Governor Ohio  
Mike DeWine/Senator Ohio  
George V. Voinovich/Senator Ohio  
Rob Portman/Congressman Ohio  
Bob Ney/Congressman Ohio

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Ohio, Rob Portman/Congressman Ohio, Bob Ney/Congressman Ohio

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OFC	SPIB*		SPIB*		SPIB*	
NAME	YFaraz		LGross		JGiitter	
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U.S. Enrichment Corporation Lead Cascade  
License Application Meeting Summary

Date: February 25, 2003

Place: U.S. Nuclear Regulatory Commission (NRC) Offices; Rockville, Maryland

Attendees: See Attachment 1

Purpose:

The purpose of this open meeting was to discuss with U.S. Enrichment Corporation (USEC), its license application dated February 11, 2003, for the gas centrifuge uranium enrichment test and demonstration facility (Lead Cascade) to be sited at the Portsmouth Gaseous Diffusion Plant site in Piketon, Ohio. Representatives from the offices of Governor Taft (Ohio) and Senator DeWine (Ohio), an executive board member of the Southern Ohio Diversification Initiative (SODI) and a reporter from McGraw-Hill also attended the meeting. No classified or proprietary information was discussed at the meeting.

Discussion:

Following introduction of individuals attending the meeting (Attachment 1), NRC staff briefly outlined the process that it intends to follow in reviewing the Lead Cascade application. The NRC indicated that by mid-March 2003, it would be completing its administrative review of the application to determine whether USEC's application is acceptable for technical review. The NRC will notify USEC officially concerning the result of its administrative review. If the NRC finds the application acceptable for technical review, then by the end of March 2003, according to Subpart L of CFR Part 2, the NRC will issue a notice of opportunity for a public hearing in the *Federal Register*. The NRC indicated that for the Lead Cascade, it intends to prepare an Environmental Assessment (EA) and not an Environmental Impact Statement (EIS). An EIS will be prepared for the Lead Cascade only if the EA concludes that an EIS is required. Preparing an EA instead of an EIS shortens NRC's review schedule for the Lead Cascade application by about six to eight months. The NRC will also prepare a Safety Evaluation Report (SER) in which it will document the safety and security reasons for its final decision. The NRC indicated that it intends to complete its review and issue its SER, EA and its final decision by February 2004. The NRC noted that one of the factors that can directly affect the review schedule is the quality of USEC's application and its responses to NRC questions.

Following NRC's brief description of its application review process, USEC provided an overview of its gas centrifuge uranium enrichment program and the process it followed to generate the Lead Cascade application and some of the highlights of the application. USEC stated that the gas centrifuge demonstration project involving the Lead Cascade and operations in Oak Ridge Tennessee will cost USEC about \$150,000,000. USEC also briefly described the Lead Cascade facility. USEC stated that the Lead Cascade will use existing facilities at the Portsmouth site and will not require any new building to be constructed. About two Megawatts of electricity will be needed to operate the Lead Cascade compared to over a thousand Megawatts that was utilized in the past to operate the Portsmouth Gaseous Diffusion Plant. USEC's presentation is contained in Attachment 2.

During the meeting, USEC indicated that in light of the discussions it had with the NRC in the five pre-application meetings, the NRC should not find any surprises in the application. USEC stated that it had closely followed NRC's guidance, including the Standard Review Plan (NUREG-1520), in preparing its Lead Cascade application. USEC also indicated that it expects to submit an application for a 3.5 million separative work unit (SWU) commercial facility ahead of the March 2005 date listed in its June 17, 2002, agreement with the Department of Energy (DOE).

After the business portion of the meeting, the reporter from McGraw-Hill asked the NRC staff when USEC plans to begin manufacturing the rotors for the Lead Cascade. NRC staff and USEC staff indicated that USEC will first manufacture rotors for its Oak Ridge operations and then, in accordance with USEC's June 17, 2002 agreement with DOE, in 2005, USEC will manufacture rotors for the Lead Cascade. The representative from Governor Taft's office provided a letter from Governor Taft, Senators DeWine and Voinovich and Congressmen Portman and Ney to Chairman Meserve that supports USEC's Lead Cascade application. The representatives from Governor Taft's and Senator DeWine's offices also verbally conveyed their strong support for the project. The executive board member of SODI provided the NRC, for information purposes, over four thousand letters from the public to USEC that indicated support for the Lead Cascade.

NRC Action Items:

None.

Attachments: 1. Attendee list  
2. Meeting handout

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<u>Name</u>	<u>Organization</u>
Peter Miner	USEC
Trent Wertz	USEC
Jim Morgan	USEC
Muffet Chatterton	NRC
Norma Garcia-Santos	NRC
Donna Skay	NRC
Tim Johnson	NRC
Michael Knapik	McGraw Hill
Yawar Faraz	NRC
Dan Minter	Southern Ohio Diversification Initiative
Don Silverman	Morgan, Lewis
Sharon Steele	NRC
Dennis Scott	USEC
Rebecca Tadesse	NRC
Julianne Forrest	USEC
Ed Wagner	USEC
Thomas Berg	USEC
Christine Schulte	NRC
Mark Lombard	USEC
Vanice Perin	NRC
Elizabeth Belleville	Senator DeWine

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<u>Name</u>	<u>Organization</u>
Sara Zeigler	Governor Taft
Kelly Sherwood	USEC
Roger Huston	Licensing Support Services
Greg Fout	USEC
Donna Jones	USEC
Abe Zeitoun	ATL, International
Tom Pham	NRC
Steve Toelle	USEC
Mario Robles	USEC
Dan Stout	USEC
Kenric England	USEC

# USEC/NRC License Application Meeting regarding the American Centrifuge Lead Cascade Facility



**NRC Headquarters**  
Rockville, Maryland  
February 25, 2003

Attachment 2

# Agenda

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- Overview of the American Centrifuge Program
- Description of the Lead Cascade
- Review of Pre-Application Process
- Preview of License Application
- Review and Approval Process



# Overview of The American Centrifuge Program

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- **Building on a Solid Foundation**

- USEC design takes advantage of >\$3B investment by DOE
- More than 1300 machines installed at Portsmouth
- 200 SWU/machine demonstrated
- >300 SWU/machine achieved

- **Blueprint for Success**

- USEC entered into a Cooperative Research and Development Agreement with UT-Battelle to reduce machine costs and improve efficiency through use of state-of-the-art materials, control systems and manufacturing processes
- USEC entered into Agreement with DOE to deploy a commercial plant based on American Centrifuge technology by end of the decade

# Overview of The American Centrifuge Program

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- **Ahead of schedule**

- Lead Cascade license application submittal is more than two months ahead of DOE-USEC Agreement milestone date
- Submittal is culmination of hard work by USEC engineering and regulatory organizations and its contractors
- The team is ready to support the NRC review

- **Additional Status**

- Leased two facilities in Oak Ridge
- Centrifuge component testing is underway
- Good progress being made on centrifuge design improvements and manufacturing

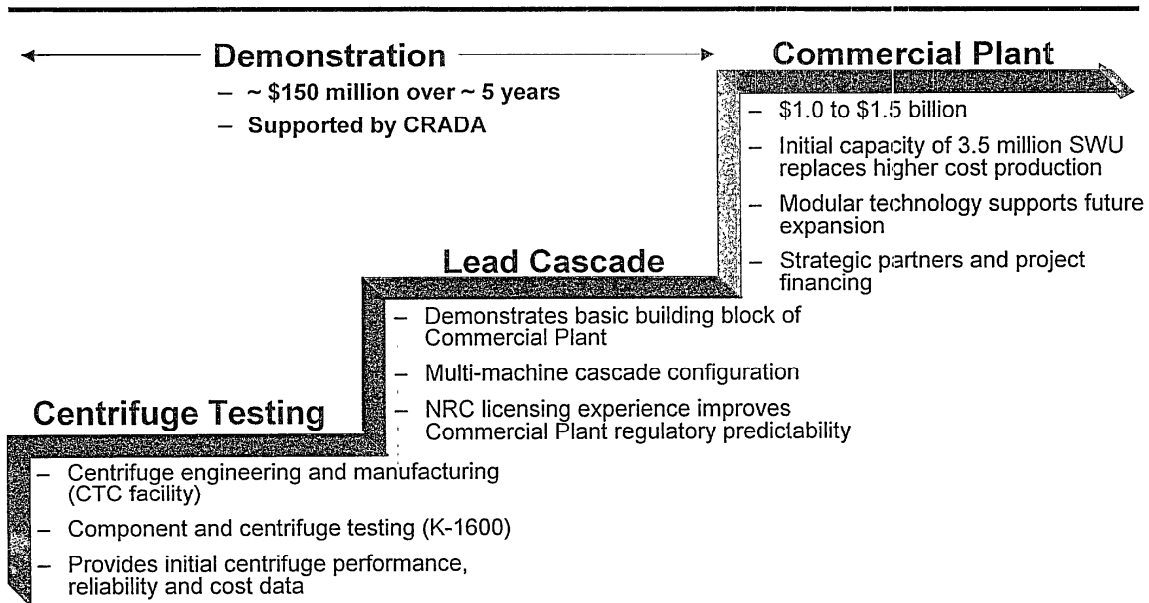


# Description of the Lead Cascade

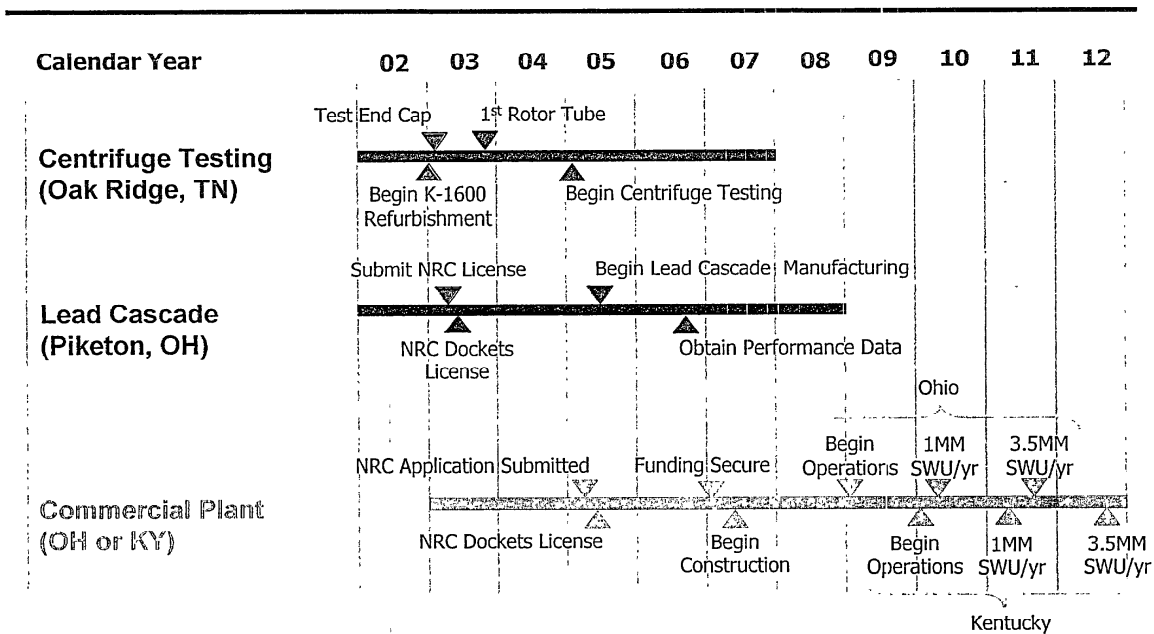
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- **Test facility of up to 240 operating centrifuges**
  - Modest possession limit of 250 kg UF<sub>6</sub>
  - Closed loop, no product withdrawal except for sampling
  - Utilize GDP programs, as appropriate
- **Demonstrates Basic Commercial Plant Building Block**
  - Cascade configuration of centrifuge machines
  - Platform for training and procedures
- **Reliability and performance data obtained to minimize or eliminate deployment risk factors for Commercial Plant**
  - Cost
  - Schedule

# Program Steps



# Program Schedule



# Review of Pre-Application Process

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- **Regulatory Framework**
- **Pre-Application Meetings**
- **Pre-Application Submittals**
- **Application Preparation**

# Regulatory Framework

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- **Established in NRC letter on 9/14/01**
  - “Centrifuge test loop” at a GDP would require licensing under 10 CFR Part 70
  - Not a Uranium Enrichment Facility
- **Purpose of facility is demonstration**
  - Reliability, performance, cost, and other vital data
- **Enriched and depleted streams are recombined and reintroduced as feed**
  - No removal of enriched product except for sampling

# Pre-Application Meetings

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- **In 2002, USEC and NRC held four public meetings and one closed meeting on key application issues**
  - Scope and Schedule
  - Quality Assurance Program and Security Program
  - Integrated Safety Analysis (ISA) Methodology
  - ISA Sample Case and Bounding Case (closed meeting)
  - Environmental Report (ER)



# Pre-Application Submittals

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- **USEC submitted the following documents in advance of the application:**
  - Quality Assurance Program Description (QAPD)
  - Security Program
- **USEC responded to NRC “Request for Additional Information” on security aspects of Security Program**
- **USEC is prepared to discuss NRC questions on the QAPD**

# Application Preparation

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- **Format and content**
  - Complies with NRC regulations
  - Conforms to NRC guidance in NUREG-1520
  - Consistent with USEC/NRC pre-application meeting discussions
- **Pre-submittal reviews**
  - Subject Matter Experts (in-house and contracted)
  - “Mapping Matrix”
  - Multi-disciplinary Technical Review Team
  - Independent Review Team
- **Familiarized NRC with the American Centrifuge technology**
  - Facility tours and classroom training

# Preview of License Application

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- **Application Highlights**
- **Environmental Report Highlights**
- **Integrated Safety Analysis Summary Highlights**
- **Minimal Information Withheld**

# Application Highlights

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- **License period of 5 years**
  - Special nuclear, source, and by-product material
- **Facility Description**
  - Up to 240 operating centrifuges in cascade configuration
  - Additional centrifuges for other uses (e.g., spares, storage)
  - Buildings used were designed for the American Centrifuge technology
- **Possession Limit**
  - 250 kg UF<sub>6</sub>
  - 10 weight percent U-235
  - 700g enriched U-235

## Application Highlights (cont'd)

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- **Organization and Administration**
  - USEC Inc. is the Applicant
  - Resources and infrastructure from United States Enrichment Corporation utilized in various important programmatic areas (see next slide)
  - Using existing NRC-approved programs at PORTS provides consistency throughout the site and capitalizes on proven systems and programs
- **Decommissioning Funding Plan**
  - Conforms to NRC guidance in NUREG-1727
  - Use of Surety Bond as financial instrument for decommissioning cost
- **Fundamental Nuclear Materials Control Plan**

## Application Highlights (cont'd)

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- **Existing NRC-approved PORTS GDP Programs Utilized**
    - Industrial Safety & Hygiene
    - Radiation Protection
    - Nuclear Criticality Safety
    - Fire Safety
    - Emergency Management
    - Environmental Protection
    - Waste Management
    - Records Management and Document Control
    - Engineering
    - Procurement
    - Nuclear Material Control and Accountability
    - Security and Safeguards
-

# ER Highlights

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- **Format and content conform to NRC guidance in NUREG-1748**
- **No new building construction; centrifuges to be installed and operated within existing buildings designed for the American Centrifuge technology**
- **No new types of hazardous material introduced (in possession limit)**
- **Environmental impacts of “No Action” and PGDP siting alternatives also presented**

## ER Highlights (cont'd)

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- **Slight increase in utility usage; but well within site capacities and historic levels**
  - Electricity
  - Compressed air
  - Sanitary sewage
- **No environmental justice issue**
  - No significant impact to any segment of population
- **Supports “Finding Of No Significant Impact”**



# ISA Summary Highlights

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- **Conforms to NRC guidance in NUREG-1513 and Chapter 3.0 of NUREG-1520**
- **Provides details of centrifuge design and operation and is classified as “SECRET - Restricted Data”**
- **Internal and external hazards exhaustively and conservatively evaluated**

## ISA Summary Highlights (cont'd)

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- **No mitigated high consequence events**
- **Eight mitigated intermediate consequence events**
  - Six events have a likelihood of occurrence of “Highly Unlikely”
  - Two events have a likelihood of occurrence of “Unlikely”
- **A number of sole “Items Relied On For Safety” were identified; examples include:**
  - Inventory Control
  - Site elevation
  - Building structural design
  - Emergency response
  - Fire suppression system

## Minimal Information Withheld

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- **USEC strived to provide information that could be publicly released**
- **Consistent with regulations, including 10 CFR 2.790, the following information was withheld:**
  - Information that could assist in planning a terrorist attack
  - Cost comparison to site Lead Cascade at PORTS versus PGDP
  - Fundamental Nuclear Materials Control Plan
  - Classified and Export Controlled Information
- **A redacted unclassified version of the ISA will be submitted to NRC after appropriate classification and export control reviews**

# Review and Approval Process

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- **USEC is eager to demonstrate the American Centrifuge technology and requests:**
  - NRC acceptance of application for formal review in March 2003
  - NRC approval of application by February 2004
- **USEC is seeking ways to facilitate NRC review and approval process**
  - Supplied CD-ROM version of submittal
  - Availability of "Mapping Matrix"
- **Success in this effort supports deployment of Commercial Plant before the end of the decade**